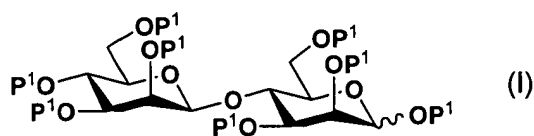


## AMENDMENTS TO THE CLAIMS

1-2. (Cancelled)

3. (Currently amended) ~~The A~~ method for preparing a trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcN $\beta$ 1 $\rightarrow$ 4GlcN) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein, ~~of claim 2, further comprising~~

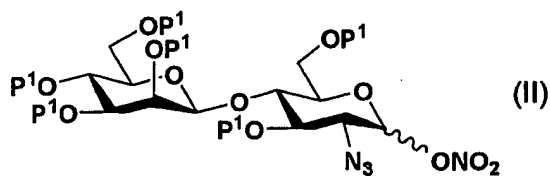
(1) a process of preparing a mannose disaccharide compound (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>) of the formula (I)



wherein P<sup>1</sup> is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethylsilyl, and the wavy line means that -OP<sup>1</sup> is linked at an axial or equatorial position, or mixture of both, by hydrolyzing a polysaccharide having mannose  $\beta$ -1,4-bonds and protecting OH groups of the resulting hydrolysate,

(2) a process of preparing a glycal compound, in which mannose of a reducing terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>),

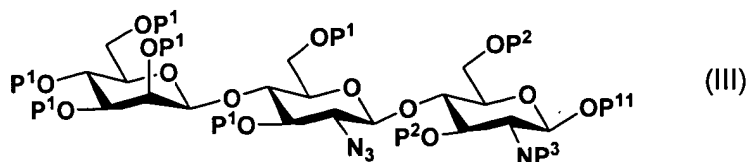
(3) a process of preparing an azide disaccharide compound (a type of ManP<sup>1</sup> $\beta$ 1 $\rightarrow$ 4ManP<sup>1</sup>) shown with formula (II) in which a 2-azide group of mannose in a reducing terminal is linked at an equatorial position;



wherein P<sup>1</sup> is the same as described above, the wavy line means that -ONO<sub>2</sub> is linked at an axial or equatorial position, or mixture of both, by azidenitration reaction of the glycal compound above,

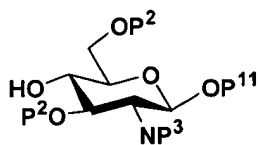
(4) a process of substituting the nitro group of the azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimide, ~~pentenyl~~4-pentenyl, alkylthio and arylthio, and

(5) a process of preparing a trisaccharide compound (a type of  $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula (III);



wherein  $P^1$  is an OH- protecting group, as described above,  $P^2$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~trimethylsilyl and triethylsilyl,  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^{11}$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~trimethylsilyl and triethylsilyl,

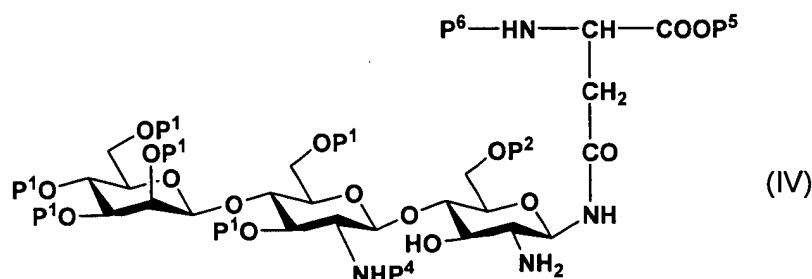
by a reaction of the product having the leaving group with amino-protected glucopyranoside shown with the formula;



wherein  $P^2$ ,  $P^3$  and  $P^{11}$  are the same as described above.

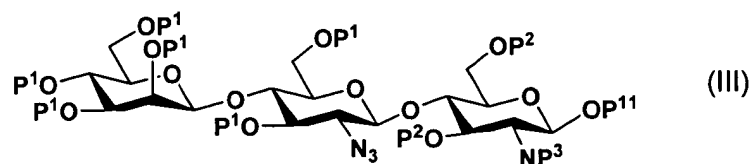
4. (Currently amended) The method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein of claim 3, further comprising

(6) a process of preparing an asparagine-linked trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) compound shown with the formula (IV);



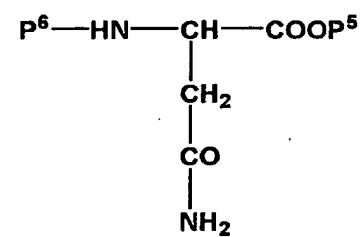
wherein  $P^1$  and  $P^2$  are independently OH-protecting groups, as described above,  $P^4$  and  $P^6$  are independently amino-protecting groups selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^5$  is a carboxyl-protecting group which is t-Bu,

by deprotecting the  $P^{11}$  group of the compound (III),



wherein  $P^1$ ,  $P^2$  and  $P^{11}$  are independently OH-protecting groups, as described above, and  $P^3$  is an amino-protecting group, as described above,

reducing the azide group to an amino group, protecting the amino group with an acetyl group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a reducing terminal, and coupling with a protected asparagines derivative of the formula:



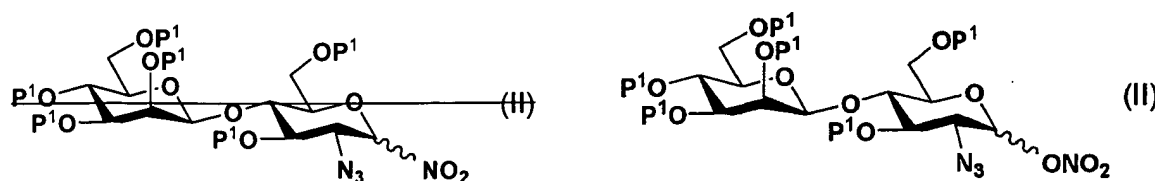
wherein  $P^5$  and  $P^6$  are the same as described above,

after introducing a  $-N=C=S$  group at the reducing terminal.

5. (Cancelled)

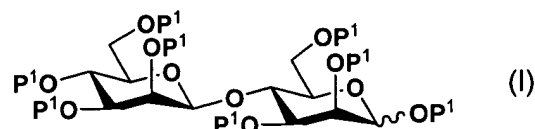
6. (Currently amended) A method for preparing an azide disaccharide (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (II) in which a 2-azide group of mannose in a

reducing terminal is linked at an equatorial position;



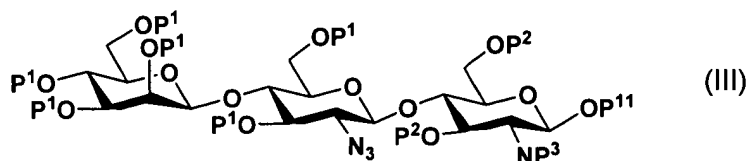
wherein P<sup>1</sup> is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl, and the wavy line means that  $\text{NO}_2\text{—ONO}_2$  is linked at an axial or equatorial position, or mixture of both,

comprising a process of preparing a glycal compound, in which mannose of the reducing terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide compound (a type of  $\text{ManP}^1\beta 1\rightarrow 4\text{ManP}^1$ ) shown with the formula (I);



wherein P<sup>1</sup> is the same as described above and the wavy line means that  $\text{—OP}^1$  is linked at an axial or equatorial position, or mixture of both, and subsequent azidenitration reaction of the glycal compound.

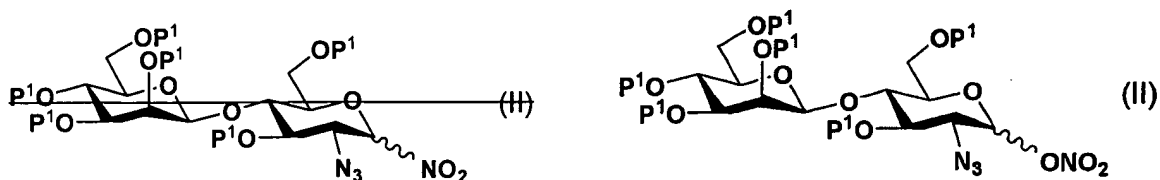
7. (Currently amended) A method for preparing a trisaccharide compound shown with the formula (III);



wherein P<sup>1</sup>, P<sup>2</sup> and P<sup>11</sup> are independently OH- protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl, and P<sup>3</sup> is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl,

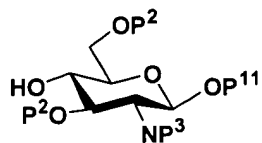
comprising a process of substituting the nitro group of the azide disaccharide compound (a type

of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with the formula (II) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimidate, ~~pentenyl~~4-pentenyl, alkylthio and arylthio;



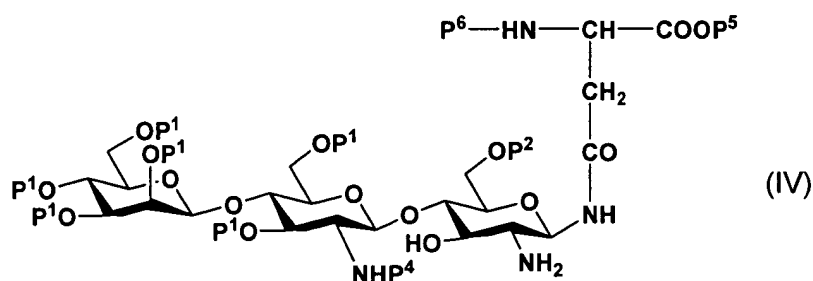
wherein  $P^1$  is the same as described above, the wavy line means that  $-\text{NO}_2-\text{ONO}_2$  is linked at an axial or equatorial position, or mixture of both, and a 2-azide group of mannose in the reducing terminal is linked at the equatorial position,

and next, reacting the substituted compound having the leaving group with amino-protected glucopyranoside of the formula;

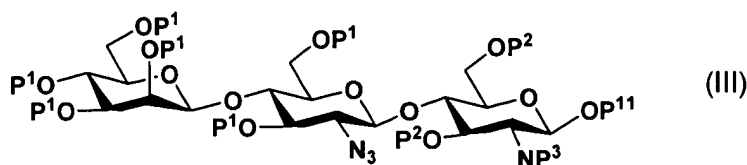


wherein  $P^2$ ,  $P^3$  and  $P^{11}$  are the same as described above.

8. (Currently amended) A method for preparing an asparagine-linked trisaccharide compound ( $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula (IV)

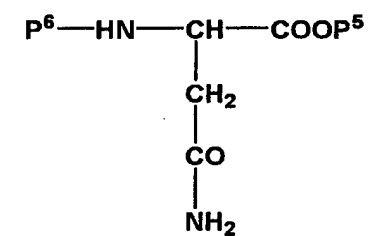


wherein  $P^1$  and  $P^2$  are independently OH- protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~trimethylsilyl and triethylsilyl,  $P^4$  and  $P^6$  are independently amino-protecting groups selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^5$  is a carboxyl-protecting group which is t-Bu, by deprotecting the  $P^{11}$  group of the compound (III),



wherein  $P^1$  and  $P^2$  are the same as described above,  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^{11}$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl,

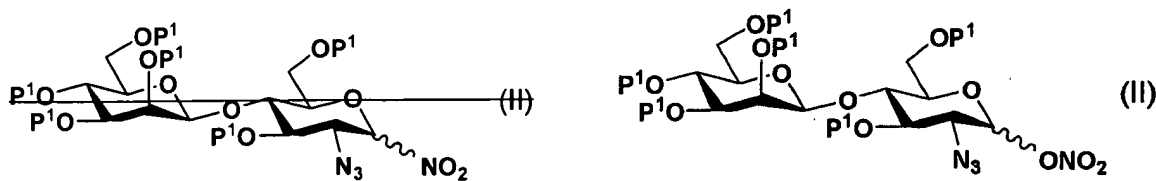
reducing the azide group to an amino group, protecting the amino group with an acetyl group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a reducing terminal, and coupling with a protected asparagines derivative of the formula:



wherein  $P^5$  and  $P^6$  are the same as described above,

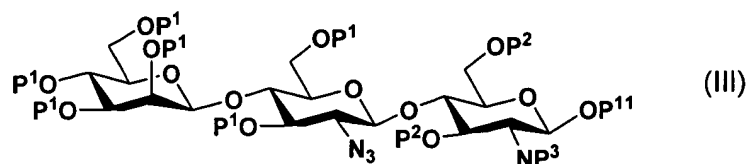
after introducing a  $-N=C=S$  group at the reducing terminal.

9. (Currently amended) An azide disaccharide (a type of  $ManP^1\beta 1 \rightarrow 4ManP^1$ ) compound shown with the formula (II);



wherein  $P^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl, and the wavy line means that  $-NO_2-ONO_2$  is linked at an axial or equatorial position, or mixture of both.

10. (Currently amended) A trisaccharide compound (a type of  $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula of (III);

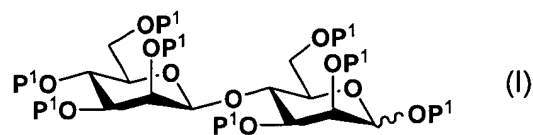


wherein  $P^1$ ,  $P^2$  and  $P^{11}$  are independently OH-protecting groups selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl, and  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl.

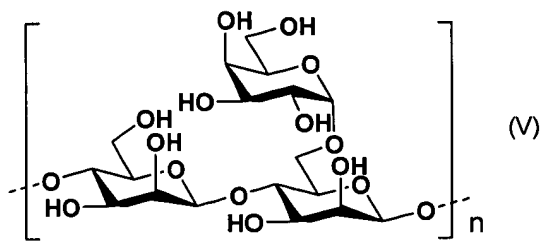
11-12. (Cancelled)

13. (Currently amended) ~~The A~~ method for preparing a trisaccharide ( $\text{Man}\beta 1 \rightarrow 4\text{GlcN}\beta 1 \rightarrow 4\text{GlcN}$ ) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein, ~~of claim 12, further comprising~~

(1) a process of preparing a mannose disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) of the formula (I)



wherein  $P^1$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, trimethylsilyl and triethylsilyl, and the wavy line means that  $-\text{OP}^1$  is linked at an axial or equatorial position, or mixture of both, by hydrolyzing guar gum or galactomannan of the formula (V);

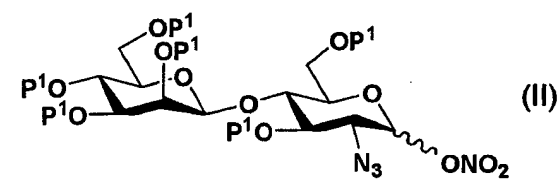


wherein  $n$  is an integer of 50 or more,

and protecting OH groups of the resulting hydrolysate.

(2) a process of preparing a glycal compound, in which mannose of a reducing terminal of the mannose disaccharide is converted to glycal, by halogenation and reduction of the mannose disaccharide (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ), and

(3) a process of preparing an azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) shown with formula (II) in which a 2-azide group of mannose in a reducing terminal is linked at an equatorial position;

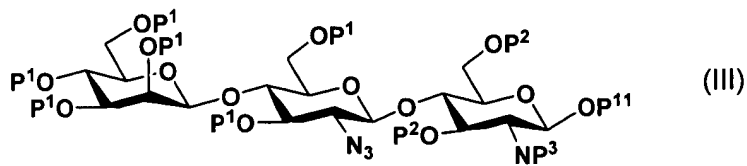


wherein  $P^1$  is the same as described above, the wavy line means that  $-\text{ONO}_2$  is linked at an axial or equatorial position, or mixture of both,

by azidenitration reaction of the glycal compound above,

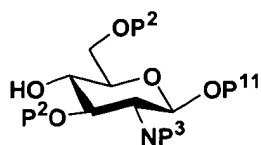
(4) a process of substituting the nitro group of the azide disaccharide compound (a type of  $\text{ManP}^1\beta 1 \rightarrow 4\text{ManP}^1$ ) with a leaving group selected from the group consisting of fluorine atom, chlorine atom, trihaloacetoimide, pentenyl, alkythio and arylthio, and

(5) a process of preparing a trisaccharide compound (a type of  $\text{Man}\beta 1 \rightarrow 4\text{GlcNP}^1\beta 1 \rightarrow 4\text{GlcNP}^2$ ) shown with the formula (III);





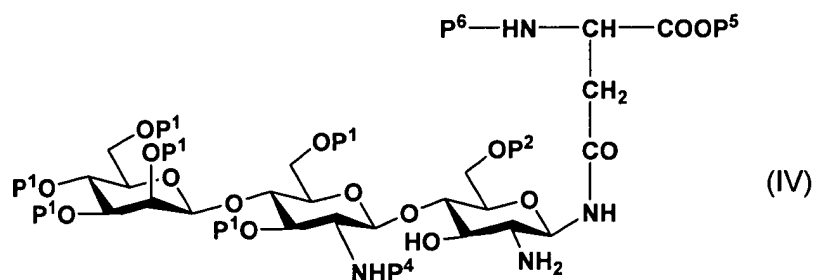
wherein  $P^1$  is an OH- protecting group, as described above,  $P^2$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl,  $P^3$  is an amino-protecting group selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^{11}$  is an OH-protecting group selected from the group consisting of acetyl, benzyl, 4-methoxybenzyl, benzoyl, methoxymethyl, tetrahydropyranyl, ~~trimethylsilyl~~ trimethylsilyl and triethylsilyl, by a reaction of the product having the leaving group with amino-protected glucopyranoside shown with the formula;



wherein  $P^2$ ,  $P^3$ , and  $P^{11}$  are the same as described above.

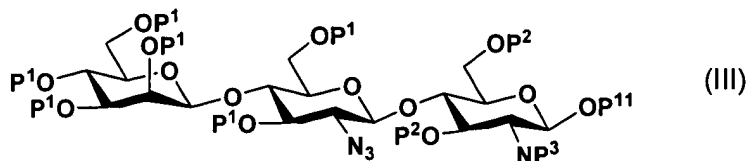
14. (Currently amended) The method for preparing a trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcN $\beta$ 1 $\rightarrow$ 4GlcN) of a reducing terminal in a core sugar chain structure of an asparagine-linked glycoprotein of claim 13, further comprising

(6) a process of preparing an asparagine-linked trisaccharide (Man $\beta$ 1 $\rightarrow$ 4GlcNP $^1$  $\beta$ 1 $\rightarrow$ 4GlcNP $^2$ ) compound shown with the formula (IV);



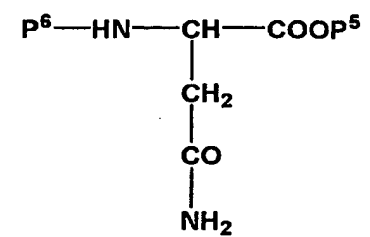
wherein  $P^1$  and  $P^2$  are independently OH- protecting groups, as described above,  $P^4$  and  $P^6$  are independently amino-protecting groups selected from the group consisting of phthalimide, tert-butyloxycarbonyl, benzyloxycarbonyl, acetyl, benzoyl and benzyl, and  $P^5$  is a carboxyl-protecting group which is t-Bu,

by deprotecting the P<sup>11</sup> group of the compound (III),



wherein P<sup>1</sup>, P<sup>2</sup> and P<sup>11</sup> are independently OH- protecting groups, as described above, and P<sup>3</sup> is an amino-protecting group, as described above,

reducing the azide group to an amino group, protecting the amino group with an acetyl group, forming an oxazoline ring simultaneously with deprotecting a hydroxy group of a reducing terminal, and coupling with a protected asparagine derivative of the formula:



wherein P<sup>5</sup> and P<sup>6</sup> are the same as described above,

after introducing a —N=C=S group at the reducing terminal.